

REMARKS

As an initial matter, Applicant submits herewith a petition for a month extension of time to respond to the Office Action mailed on May 20, 2004.

Claims 1-3 are pending in this application. Applicant has added new claims 4-26. The Examiner rejected claims 1-3 under 35 U.S.C. §112 as being indefinite for the inclusion of the term "and/or". This language only appears in independent claims 1-2. Applicant has amended claims 1 and 2 to remove this language and clarify the invention and believes this objection has been overcome.

The Examiner also rejected claims 1-3 as being unpatentable over U.S. Patent No. 5,548,617 to Patel in view of U.S. Patent No. 5,913,155 to Tomiyama. Applicant has amended independent claims 1 and 2 and believes these claims have been placed in condition for allowance.

Applicant has carefully reviewed the arguments presented in the Office Action and respectfully requests reconsideration of the claims in view of the remarks presented below.

Rejection Under 35 U.S.C. §112

The Examiner rejected claims 1-3 as being indefinite for the use of the term "and/or". This term is only found in independent claims 1-2 which have been amended to remove this language. Applicant submits that this rejection should be removed.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 1-3 as being unpatentable over U.S. Patent No. 5,548,617 to Patel et al. in view of U.S. Patent No. 5,913,155 to Tomiyama. Applicant respectfully submits that the Examiner has misconstrued the teachings of Patel and Tomiyama. The Patel patent discloses a vestigial side band receiver (VSB) for receiving HDTV signals and the final intermediate frequency output signal of the tuner 1 in the

Patel circuit, after passing through a third mixer 20, includes a VSB extending down to 1-2 MHz and a full sideband extending up to a frequency of 7-8MHz (see col. 6, lines 21-30).

However, as explained in the present application, these high frequencies would be unacceptable. More specifically, the Hashimoto invention reduces¹ the intermediate frequency signal down to 455 KHz or 10.24KHz from 10MHz to facilitate processing by the digital signal processor (DSP). According to the Hashimoto specification, this is done because it is not possible to apply the data processing speed of DSP 11 to signal at 455KHz. See p. 7, lines 6-7. Thus, the Patel circuit does not reduce the frequency range down to an acceptable range usable by the Hashimoto circuit and is not an applicable primary reference to support a Section 103 rejection.

The Patel circuit also requires significantly more components to accomplish its function as it requires the added complexity of handling video signals in addition to audio signals. For example, the Patel circuit requires a packet sorter to sort the audio signals from the video signals which is an unnecessary component in the Hashimoto circuit. The complexity of the Patel circuit is unnecessary in the present invention and thus does not support a finding of unpatentability of the present invention.

Claim 1:

With respect to claim 1, the Examiner acknowledges that Patel does not include a passband changing means changing a passband based on an adjustment signal from an adjustment operation part (see Office Communication mailed May 20, 2004, pg. 3). Concerning this admittedly missing feature from Patel, the Examiner goes on to argue that it is common knowledge to duplicate parts of an invention and that it would have been obvious to one skilled in the art to modify Patel by duplicating the passband modification means as indicated earlier in the claim. However, this overlooks that the bandpass changing means and passband changing means are not duplicates as recited in claim 1 or claim 2. The bandpass changing means involves the changes to an analog

signal received from an antenna and passed through a plurality of frequency converting stages. The passband changing means, however, involves changing to the digital signal received by the digital signal processing means. These are not duplicate circuit components. Thus, the Examiner mischaracterizes the claim limitations and his reliance on Patel as a source of this structural recitation is unsupported.

The Examiner also claims that the motivation to modify Patel comes from the desire to achieve better control over the system. As stated above, Applicant submits that one of ordinary skill in the art would not look to Patel as the Patel circuitry involves a much higher signal frequency unusable by the Hashimoto signal as the signal enters the digital signal processor. In addition, such motivation is clearly countered by the expense of adding components to the circuit, particularly those incorrectly characterized as duplicates by the Examiner, which creates additional heating control concerns as well as additional interference concerns, not to mention costs. Moreover, Patel itself, does not discuss such motivation or suggest such a modification.

Even if the Patel circuit were modified, as the Examiner contends, then only an additional "duplicate" passband changer would be added. However, in the present invention, the first bandpass changing means involves analog filters while the second passband changing means involves a digital filter. Thus, modification of the Patel circuit according to the Examiner's contentions would still not result in the present invention or render such invention obvious.

The Examiner also acknowledges that Patel does not include a control means, which, by controlling said digital signal processing means, based on an adjustment signal from an adjustment operation part, causes said passband of said intermediate frequency signals at each stage to change (see Office Communication mailed May 20, 2004, pg. 3). The Examiner submits that Tomiyama teaches such a control means and that it would have been obvious to modify the Patel circuit with the control means explained in Tomiyama to change the frequencies. However, the Tomiyama patent does not describe

a circuit for processing a digital signal and Applicant submits that one of ordinary skill in the art would not look to Tomiyama to modify the circuit in Patel. Moreover, the control means as recited in claims 1 and 2 requires the frequencies to be changed in concert. The Tomiyama patent discloses only that the first local oscillator is in communication with a control unit. A second local oscillator is not in communication with the control unit. Thus, any change signals issued by the control unit would only effect the frequency of a single frequency converter for a given receiving broadcasting signal. Changing in concert in the same frequency converting circuit is not described or suggested in the Tomiyama patent. Furthermore, the Examiner does not point to any specific feature in the Tomiyama patent that would provide this limitation.

Moreover, it also appears that the Examiner also incorrectly interprets the phrase "to change in concert" used in claims 1 and 2 as changing sound during an actual stage event, performance, or movie (see Office Communication mailed May 20, 2004, pp. 3 and pg. 4, ¶9) as opposed to meaning "acting together". As explained in the specification, based on an adjustment signal from the adjustment operation part 22, the various local oscillation frequencies of the first, second, and third local oscillators 3a, 5a, and 7a, respectively, may be adjusted (see page 7, ll. 19-24). Thus, each of the frequency converting stages may be changed together using the adjustment operation part 22.

Also, the Tomiyama patent discloses a broadcast signal receiving apparatus requiring a first antenna for receiving frequency modulated broadcasting signals and a second antenna for receiving amplitude modulated broadcasting signals (AM-FM band radio). In addition, there is no analog-to-digital converter and the signal is not digitally processed. Given the focus of their respective disclosures, it is improper to combine the teachings of the Patel and Tomiyama patents.

Claim 2:

The Examiner acknowledges that the control means and changing in concert limitations are not disclosed in Patel and relies on Tomiyama for support in modifying the Patel circuit with the control means described in Tomiyama as well as an unsupported statement that changing the sound during a movie would be obvious to one of ordinary skill in art to supply the missing elements of the present invention as done with claim 1.

For similar reasons advanced above concerning claim 1, the Applicant believes claim 2 distinguishes over and is not suggested by the Patel and Tomiyama references and that the Examiner's misinterpretation of the phrase "change in concert" renders that argument improper. Moreover, as explained above in connection with claim 1, combining the Patel and Tomiyama circuits would not result in the recited structure of claim 2.

Claim 3:


Claim 3 is dependent on either claim 1 or claim 2. As those claims are believed to be in condition for allowance, claim 3 is also believed to be in condition for allowance. Claim 3 has also been amended to clarify that detection means obtains the audio signal from the digital signal output and that such audio signal is then converted to an analog signal. Applicant submits that this is not an obvious feature as the prior art in FIG. 5 indicates that detector obtains an audio signal prior to converting the audio signal to a digital signal and the passing it through the DSP filter.

From the foregoing, Applicant believes this application is in condition for allowance and respectfully requests an early notification of allowance. Should the Examiner have any questions, contacting the undersigned at the earliest convenience is encouraged.

Applicant believes that no additional fees are required. However, if any additional fee is required, please charge Account No. 21-0800; likewise if any overpayment has been made, please credit Account No. 21-0800.

Respectfully submitted,

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